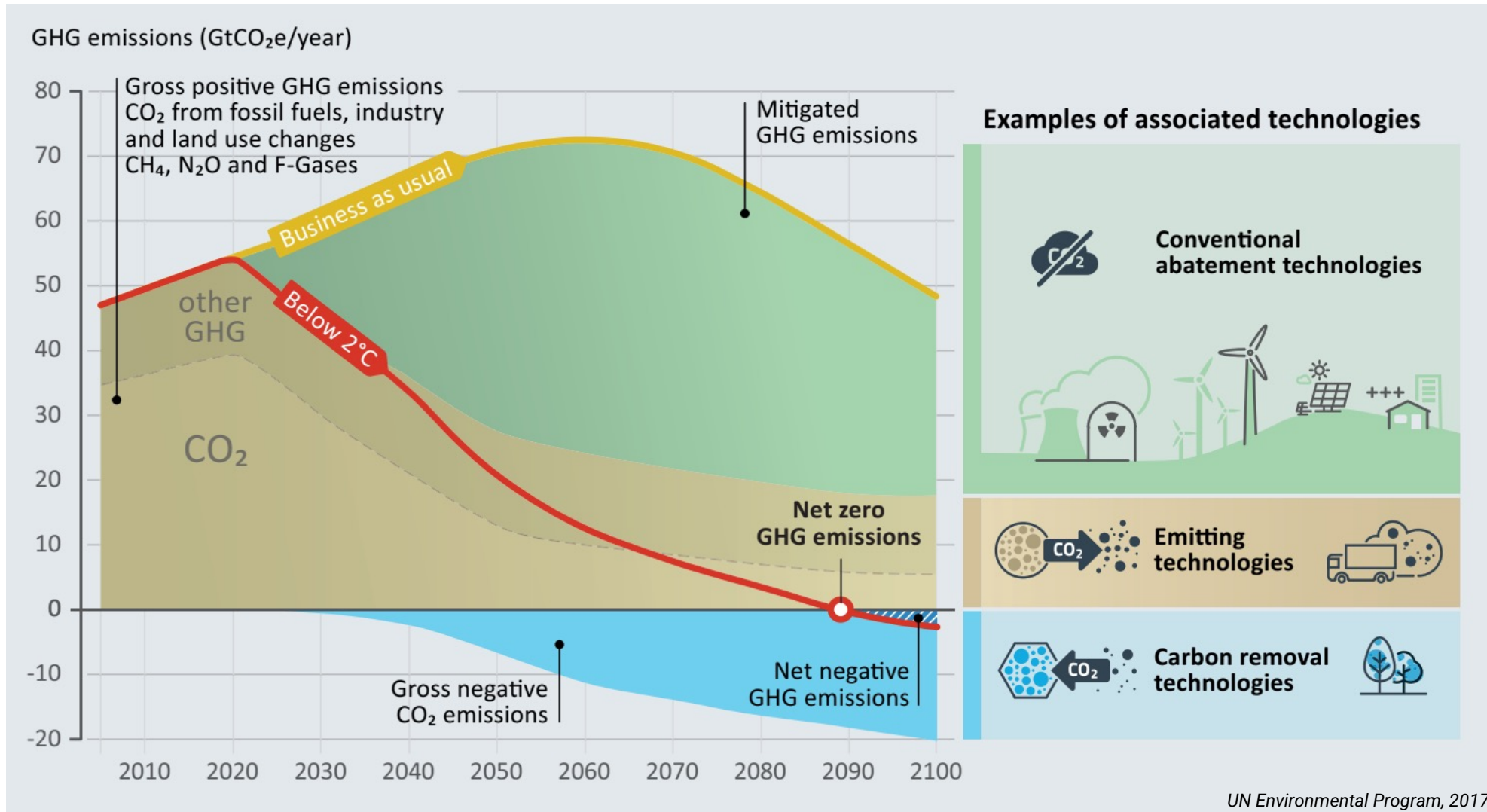


Mining Inner and Outer Space

Dr. Simon E. Freeman
ARPA-E Program Director

Where we need to go



We Must
Decarbonize

The Forest for the Trees

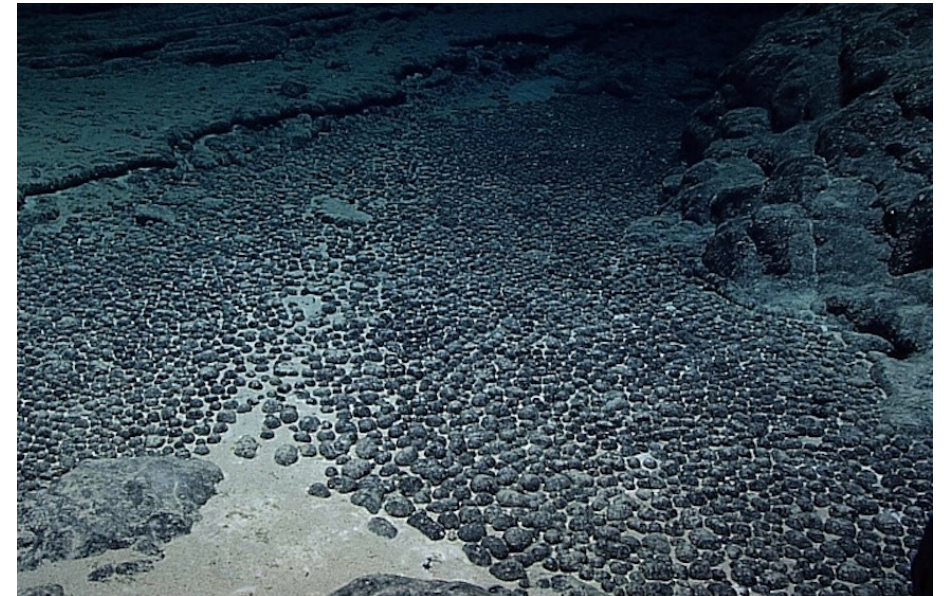
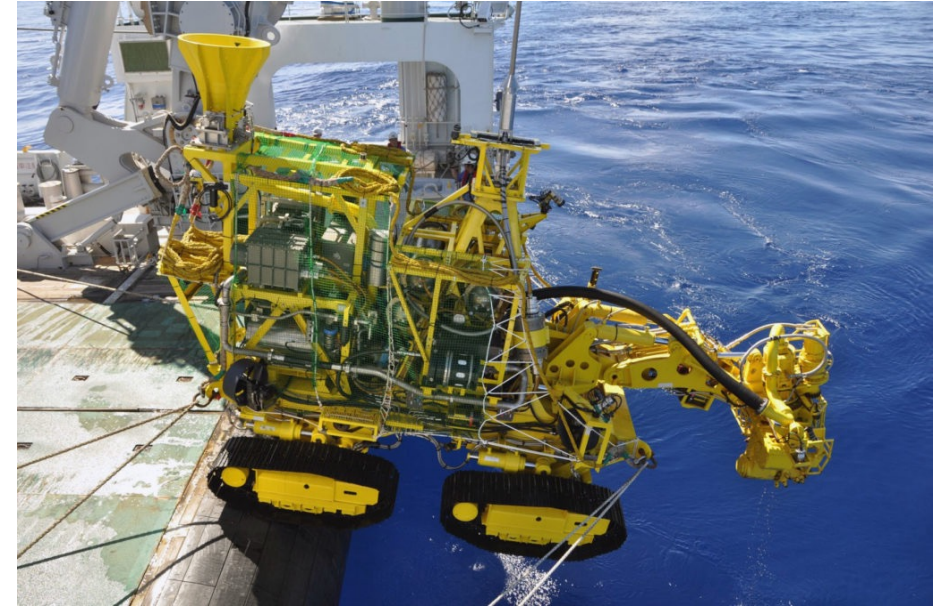
What good is Carbon Neutral...



....If it costs the earth?



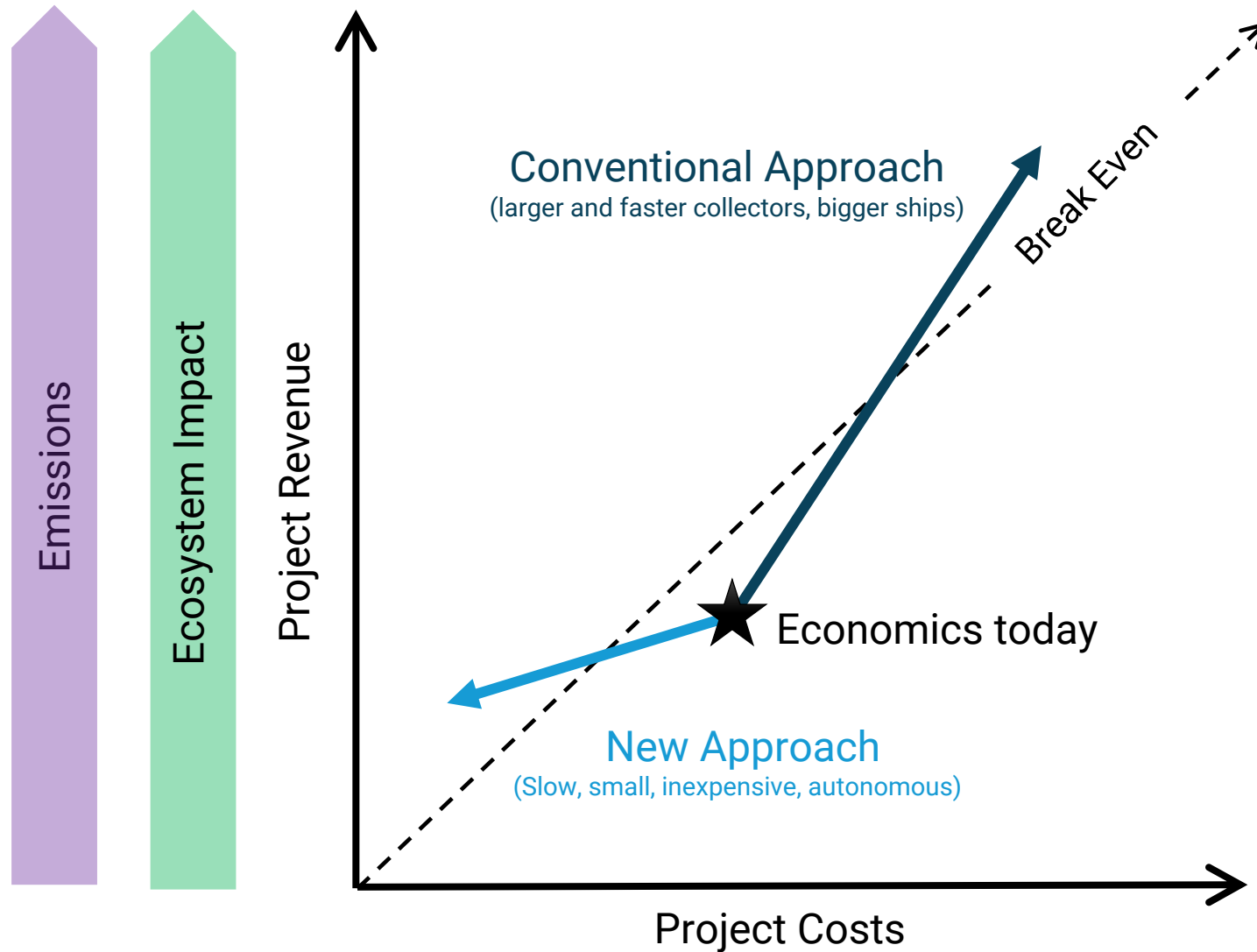
Seafloor Mining: A Better Way?



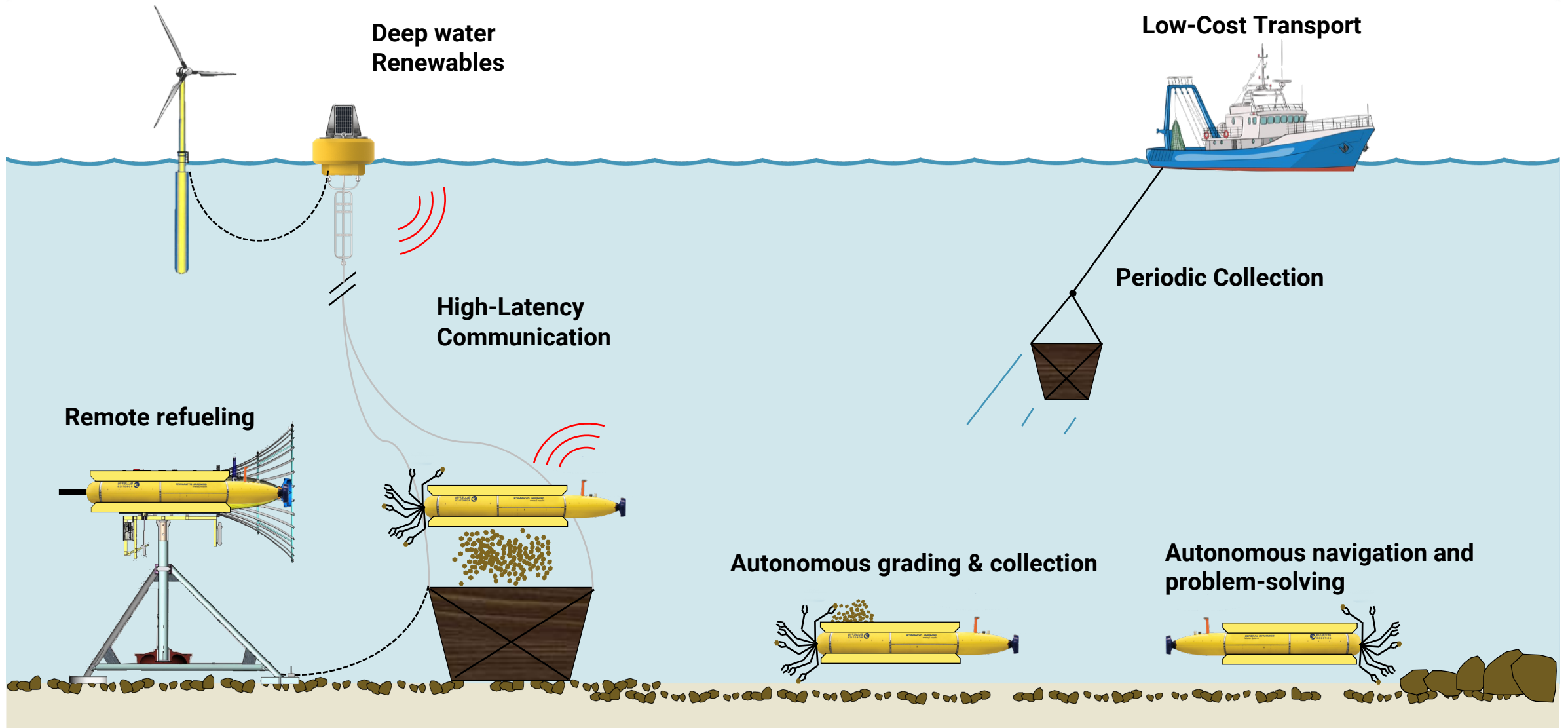
Uh oh..



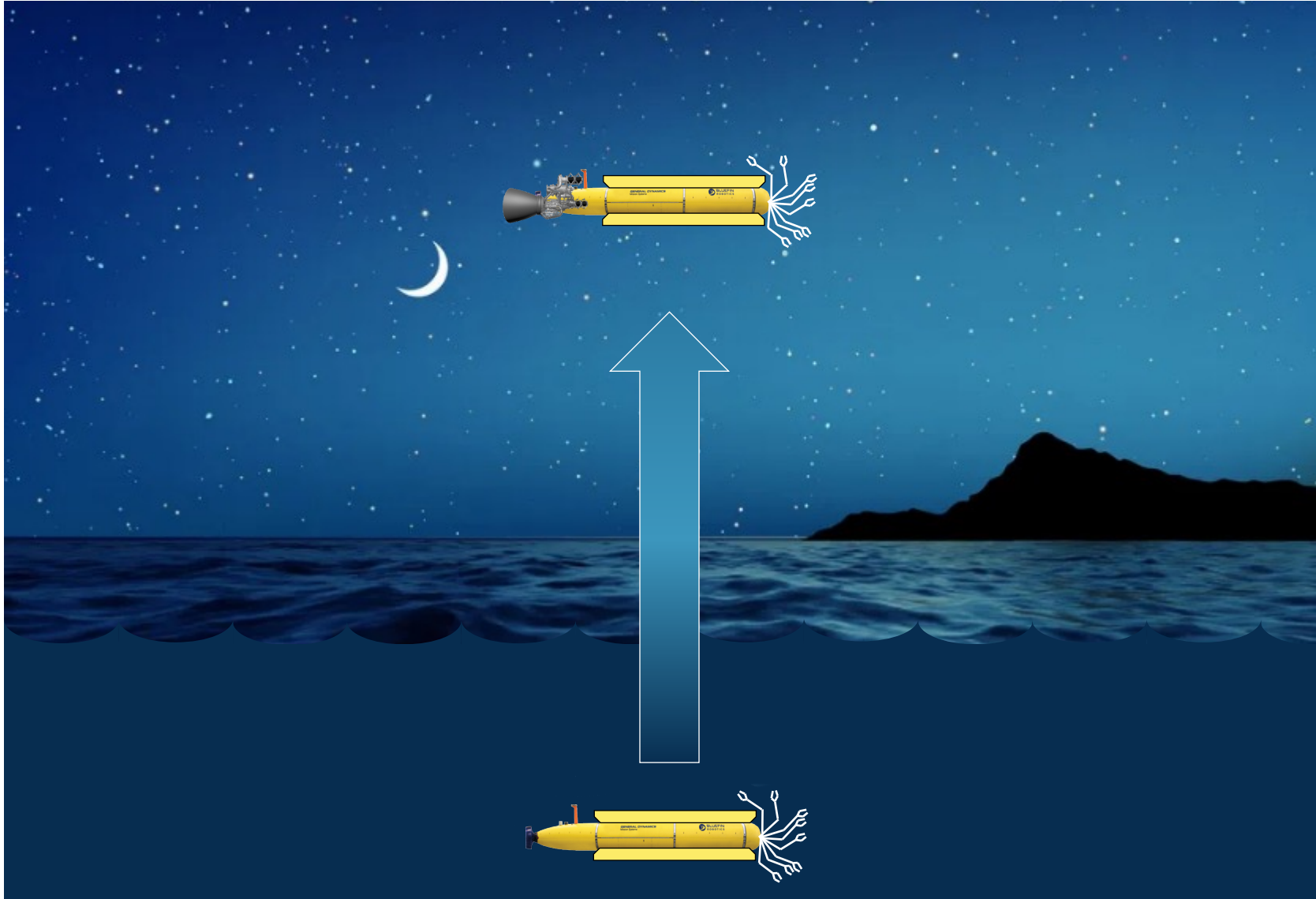
Slower, Smaller, Cheaper... Better?



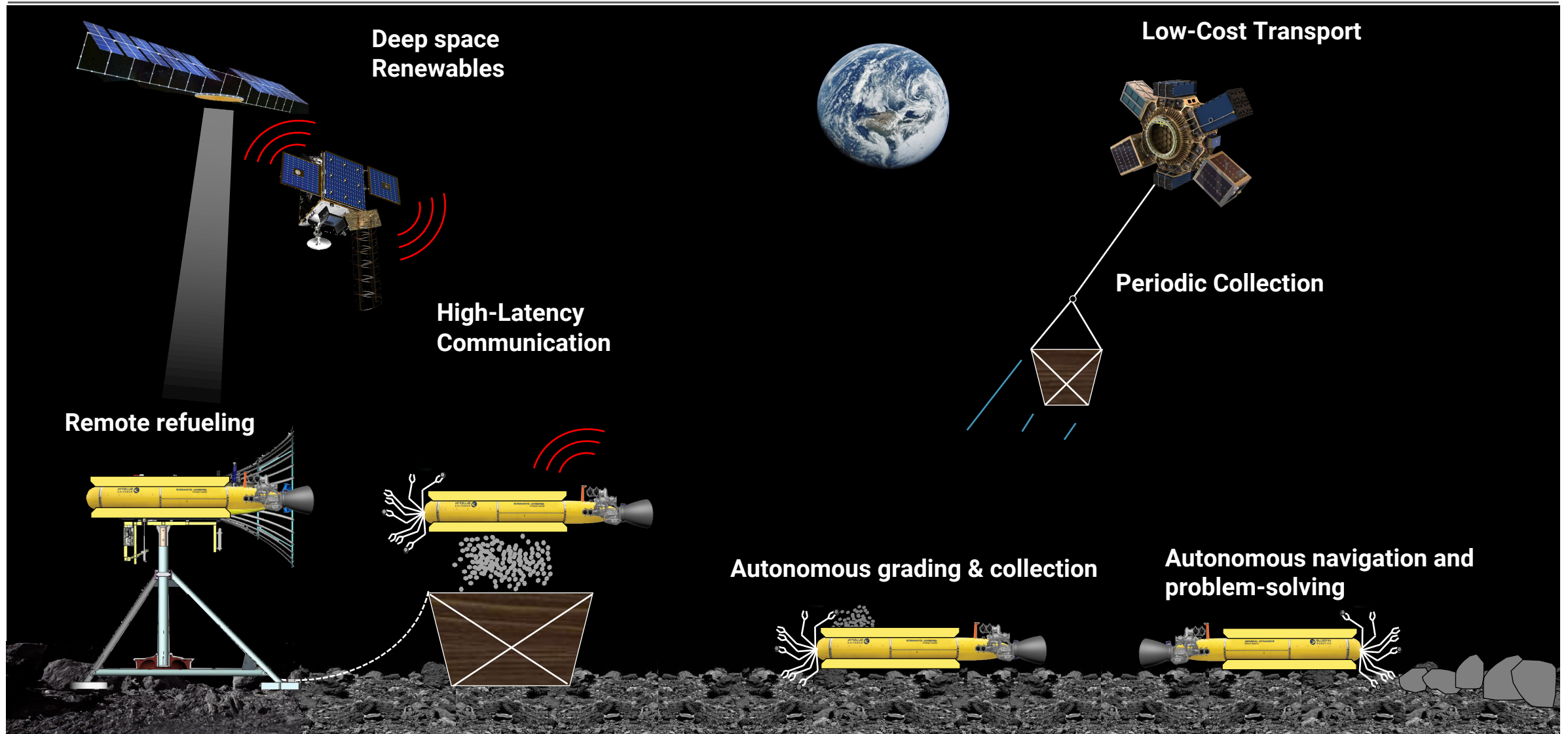
What New Approaches are Needed?



Where Else Could This Technology Be Useful?



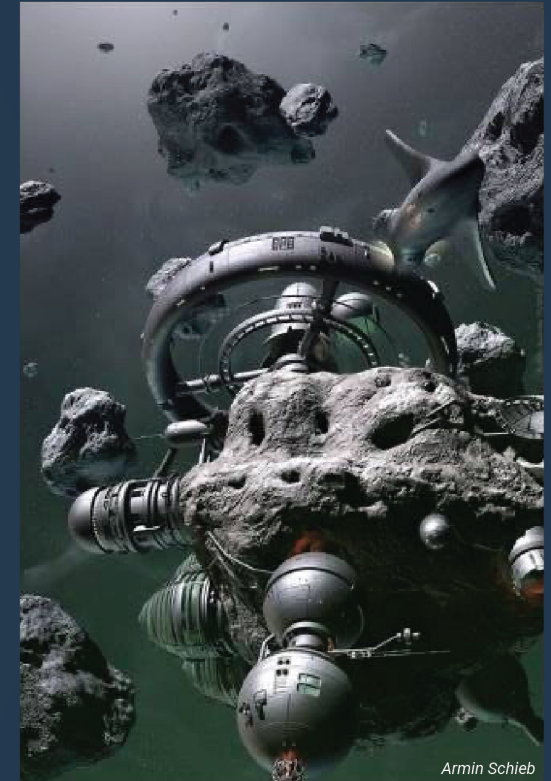
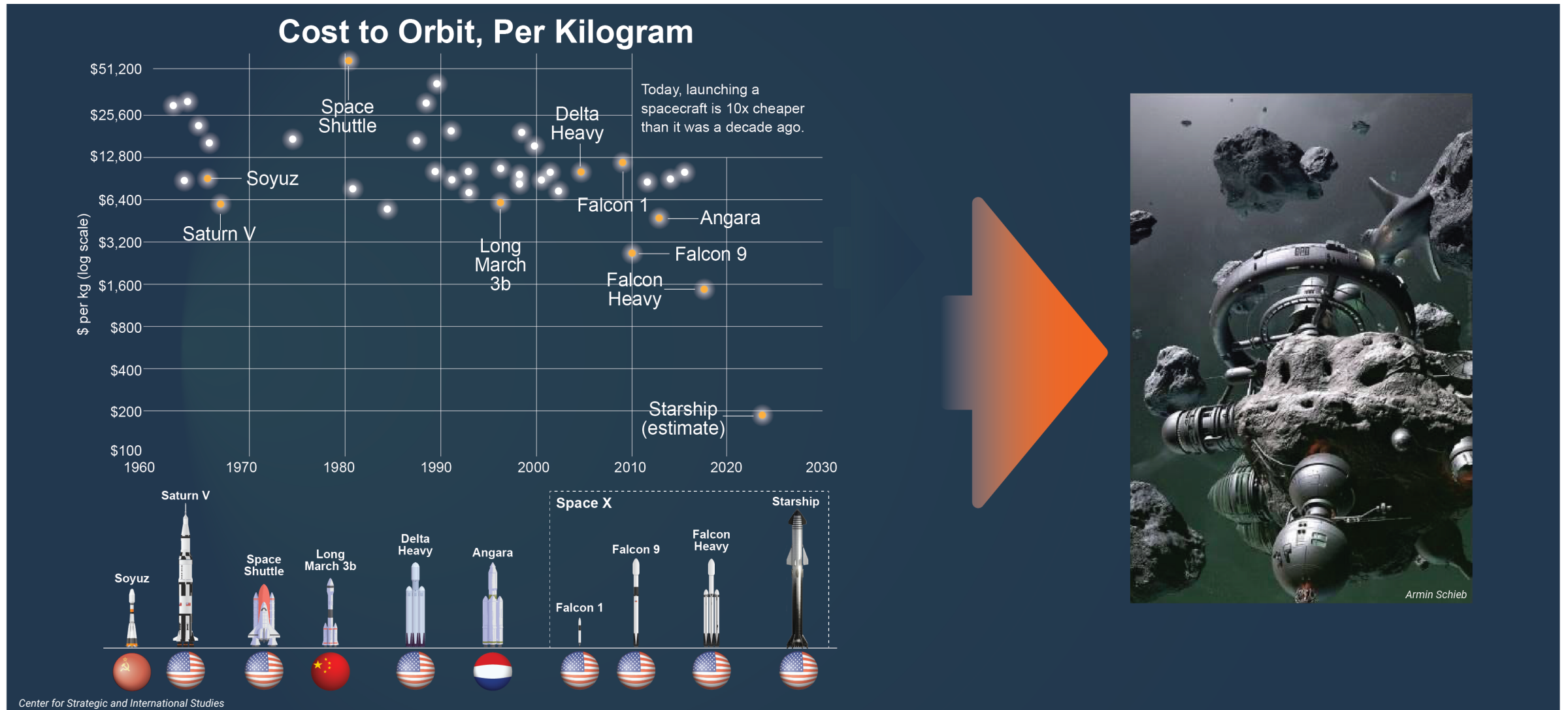
Where Else Could This Technology Be Useful?



Why Now?



An Expansion Like Never Before



Why Does This Matter?



How can ARPA-E accelerate the development of future energy industries?

Dr. Simon E. Freeman,
ARPA-E Program Director
Simon.freeman@hq.doe.gov